

several hundred birds alighted on the ship, having been blown to sea by a strong northwest breeze, evidently as they were migrating south.

The following varieties were noted:

Robins, 6 or more.

Starlings, several.

Thrushes, several.

Catbird, one seen.

Flicker, or yellow hammer, one seen.

Ground, or vesper, sparrows, many.

Bluebirds, several.

Small birds with mixed greenish feathers, like flycatchers, smaller than sparrows, many.

Small dove-colored birds size of sparrows, many.

Brown sparrows, trifle larger than English sparrows.

Birds size of sparrows with two white feathers in tail, possible snow-birds, many.

Birds a little larger than sparrows with much white on wings and back, a variety which kept well together, not seen around New York City, 12 or more.

At the time these birds began to alight on the ship, there seemed to be many more on the sea, and I have no doubt thousands of birds are lost each year during the migrating season in strong offshore breezes.

The birds are dying rapidly or fail to "make the ship" again, though on Sunday (29th) there were light airs, and many of the smaller birds and several robins are still with us.

Doubtless all will be blown to sea in the first gale and perish.

It is quite possible the ornithological societies may be well aware of loss of birds along the coast, but I have never seen it mentioned, though a "bird lover," in any article on the subject.

Aside from the facts in this communication, a press report contains an account of a similar visitation on board the Cunard liner *Scythia* on her trip from New

York to Liverpool, beginning October 26. When about 400 miles from the American coast, an extraordinary gathering of birds, estimated to be many thousands in number, settled on the steamer's deck and rigging. They included many types of small birds, as well as a few owls. Great numbers remained on board throughout the voyage.

During this period a storm of considerable intensity prevailed in the neighborhood, being central over the Canadian maritime provinces. On the afternoon and evening of the 26th moderate to strong northwesterly gales were prevalent from New York City and the vicinity eastward, and on the 27th fresh to whole gales from some westerly direction swept a large sea area south and east of Nova Scotia.

This extratropical cyclone, then, may be assigned as having caused the presence of so great a number and variety of birds in a locality far out of their ordinary range of activity. From their numbers the conclusion that they were migrant birds enroute for the southland when swept to sea seems well grounded.

Similar dispersals by the wind are constantly taking place, though perhaps somewhat rarely on so large a scale. The West Indian hurricanes, for instance, carry away many birds and insects when the paths lie over land.

MOSSMAN ON THE PHYSICAL CONDITION OF THE SOUTH ATLANTIC DURING SUMMER.

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In the monthly bulletin of the Argentine Meteorological Office there is an interesting study of "The Physical Condition of the South Atlantic during Summer," by Robert C. Mossman.¹ This study of Mr. Mossman was intended chiefly as a study of the observations made by the relief ship going to and fro between Buenos Aires and the Orcadas (South Orkneys) sent by the Argentine Government each year to carry a party of new observers and to bring back the observers of the previous year from the most southern meteorological station in the world, which has been maintained by the Argentine service since 1903. With characteristic thoroughness, Mr. Mossman has combined these data with all the accessible data for that region and produced a valuable study of the South Atlantic during the summer between latitudes 40° and 60° S. and longitudes 40° and 70° W. The summer for that region is December, January, and February.

He first works out the normal distribution of pressure for the summer. His charts show the well-known centers of high pressure over the oceans at about 30° S. They show also two centers of low pressure near the Antarctic circle, one over Weddell Sea and another to the west of Graham Land, separated by a tongue of higher pressure stretching northward from the Antarctic Continent over Graham Land.

This distribution of pressure furnishes a key to the prevailing winds which are shown by windroses drawn for each 5° square and for each month separately from December to March. The wind frequencies are indicated by the lengths of the arrows and the frequencies

of gales from each direction are indicated by the proportions of the arrows shaded.

In an additional chart the fog frequencies are shown for each wind direction during the interval January to March.

In every chart Graham Land is seen to be a windshed dividing the winds which circulate about the low pressure in Weddell Sea and the low pressure to the west of Graham Land. On the west side of Graham Land there is a distinct maximum of northeast winds in summer, while on the east side the prevailing winds are from south and southwest.

In regard to the fogs in that region he says: "When a warm wind blows over cold water, the fog is generally very dense near the surface of the water, but has very little height and occasionally it is possible to see over it from the masts of a ship. On the contrary, when a fog is produced by the passage of a cold wind over water at a higher temperature the fog extends to much greater heights, but the base does not always reach the earth's surface; so that the visibility from the deck of a ship is very different in the two cases."

The curve of frequency of fog for each hour at the Orcadas shows a maximum frequency between 8 p. m. and midnight and a minimum frequency at 2 p. m.

In examining water temperatures he found very marked falls of temperature between about 48° and 50° south latitude and finds its explanation in the sharp contrast between the Brazilian Current and the Antarctic Current, which meet about those latitudes.

A diagram is given showing the duration of ice for each year at the Orcadas from 1903 to 1920, and a closing chart is given showing the extreme northern limit of floating icebergs and the line of greatest density of icebergs in so far as they have been observed.

¹Las condiciones físicas del Atlántico sur entre el Río de la Plata y las islas Orcadas del sur durante el verano Boletín Mensual, Año IV, N.º 5, Mayo de 1919, Oficina Meteorológica Nacional, Buenos Aires, 1922.